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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

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Announcements by the Council.

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Ordinary Meetings.

Wednesday Evenings at 8 o'clock.

Jan. 18.—"On the Best Mode of Applying Power to Propel Trains, on the Metropolitan and other Railways, having Frequent Stations." By Peter W. Barlow, Esq., F.R.S.

Jan. 25.—"On the Best System for Extinguishing Fires in London." By Fredk. Young, Esq.

Feb. 1.—"On London Sewage, from the Agricultural Point of View." By J. Chalmers Morton, Esq.

Cantor Lectures.

"On the Reproduction of Natural Forms by Art and Manufacture." By B. Waterhouse Hawkins, Esq., F.G.S., F.L.S.

Mr. Hawkins will resume his Course, on Monday Evenings, as follows:—

Jan. 16th, 1865.—Lecture III.—On the varieties of artistic treatment of the forms of animal and vegetable life—pictorial representation; conventional ornamental, allegorical, and symbolic combinations of animal forms.

Jan. 23rd.—Lecture IV.—On the fitness of designs, and their adaptation to the conditions of the materials in which they are to be produced. (Demonstrated by metal-work processes, sand-moulding, casting, and chasing).

Jan. 30th.—Lecture V.—On Ceramic Manufactures, with the Influence of the material on the design and its successful production—modern Terra-Cotta, Della Robbia ware, Majolica, and Parian.

These Lectures are open to Members free of charge, and a Member has the privilege of introducing ONE Friend to each Lecture. A set of tickets for this purpose has been sent to every member.

Prizes to Art-Workmen.

The following is a Catalogue of the works sent in competition:—

First Division.

Works Executed from prescribed Designs.

No. 1. Carving in Stone of Boy and Dolphin. By "Lennox." Price £18.
2. Ditto in Marble. By "S." Price £15.
3. Ditto in Stone. By George H. Ives.
4. Ditto in Marble. By John Willis, 20, Elizabeth-street South, Pimlico, S.W. Price £15.
5. Carving in Wood of Chair-back. By James Stuart, 7, Pancras-square, N.W. Price £10.
6. Carving in Stone, after a Gothic Bracket. By W. Weaver, at R. Boulton's, Sculptor, Worcester.
7. Ditto in Stone. By "∽." Price £8.
8. Ditto in Stone. By "Leon." Price £8.
9. Carving in Wood of an Inkstand. By. W. H. Baylis, 69, Judd-street, W.C. Price £50.
10. Carving in Wood of a Harp-head. By T. E. Mayle, 17, James-street, Camberwell New-road, S. Price (completed) £15 10s.
11. Raphael's Three Graces, Repoussé Work in Metal. By W. Holliday, 14, Nailour-street, Islington, N. Price £16.
12. Ditto. By E. Beresford, 7, Chapel-street, Pentonville-road, N. Price £10.
13. Ditto. By C. Jacquard, 1, St. George's-road, New Kent-road, S.E. Price £6.
14. Ditto. By Thomas Bayley, Rann-street, Ladywood, Birmingham.
15. Repoussé Work in Metal, after a Flemish Salver. By Septimus Beresford, 29, Myddelton-street, E.C. Price £8 8s.
16. Ditto. By W. Ash, 54, Wych-street, W.C. Price (completed) £7 7s.
17. Ditto. By H. R. Batchelor, 149, St. John's-street-road, E.C. Price £18.
18. Hammered Work in Iron, after a Pediment of a Gate; designed for use as a bracket. By W. Letheren, Lansdown Iron Works, Cheltenham. Price £1 15s.
19. Ditto. By T. Winstanley, 10, Arthur-street, New Oxford-street, W.
20. Ditto in brass of the same. By J. Z.
21. Child sleeping, carved in Ivory. By J. W. Bentley, 22, Sherwood-street, Golden-square, W. Price £20.
22. Ditto. By John Richards.

23. Chasing in Bronze of "Clytie." By T. Nichols, 4, Everilda-street, Hemingford-road, N. Price £15.
24. Ornament chased in Bronze. By R. Orpwood, 2, Richmond-road, Park-road, Islington, N. Price £15.
25. Ditto. By R. E. Barrett, 26, Harrison-street, Gray's Inn-road, W.C. Price £15.
26. Ditto. By R. Reynolds, 15, Oak-village, Kentish Town, N.W. Price £12 12s.
27. Ditto. By A. Barrett, 26, Harrison-street, Gray's-inn-road, W.C.
28. Ditto. By S. R. Meek, 26, Harrison-street, Gray's-inn-road, W.C. Price £15.
29. Ditto. By V. F. Howe, 23, Berners-street, W. Price £10.
30. Ditto. By H. J. Hatfield, 16, Alfred-street, Tottenham-court-road, W. Price £10 10s.
31. Ditto. By H. R. Batchelor, jun., 149, St. John-street-road, E.C. Price £10.
33. Ditto. By S. Dawtry, 2, Walker-street, Infirmary-road, Sheffield.
34. Engraving on Silver of an Arabesque, by Lucas Van Leyden. By Gilles Mackenzie, 12, Tudor-street, Sheffield. Price £6.
35. Ditto on Copper. By G. S. Berry, 26, Warwick-street, Regent-street, W. Price £2 10s.
36. Painting on Porcelain of the Two Children in Raphael's Cartoon of "Lystra." By X. Designed for a door-plate. Price for the set of two plates and handles, £10.
37. Ditto. A Plate. By T. R. Price £10.
38. Ditto. A Plate. By H. Price £10.
39. Ditto. By Joseph B. Evans, South-street, Mount Pleasant, Fenton Potteries.
40. Ditto. By W. J. Goode, South Audley-street, W.
41. Ditto. By E. E. Dunn, Milner-street, Bethesda-street, Hanley, Potteries. Price £5.
42. Ditto. By Stephen Lawton, Bucknell Old-road, Hanley, Potteries.
43. Painting on Porcelain of an Arabesque, by Lucas Van Leyden. By Joseph B. Evans, South-street, Mount Pleasant, Fenton, Potteries. Price £10 10s.
44. Ditto. By George Griffiths, 22, Castle-street, Newcastle-under-Lyne.
45. Decorative painting. By Robert Yarrow, 67, Herbert-street, New North-road, N. Price £3 10s.
46. Ditto. By John Henk, George-street, Stoke-upon-Trent. Price £2.
47. Inlay in Metal. By E. A. Millward, 35, Little Clarendon-street, Somers-town, N.W.
48. Cameo cutting. Human Head. By James Ronca, 156, King's-road, Chelsea, S.W. Price £8.
49. Ditto. By "H. S." Price £12 12s.
50. Ditto "St. George and Dragon." By James Ronca, 156, King's-road, Chelsea, S.W. Price £8.
51. Wall Mosaics. Human Head, after *Bertini*, of Milan. By "Nemo."
52. Ditto. By the same.
53. Ditto. By J. H. Stevens, Lambeth Glass Works, Carlisle-street, S. Price £25.
54. Ditto. By Samuel Cooper, Longfield-place, Hartshill. Stoke-on-Trent. Price £10.
55. Gem Engraving. Human Head. By E. H. Renton, 34, Percy-street, Bedford-square, W.C.
56. Ditto. By John Wilson, 14, Leicester-place, W.C.
57. Ditto. By A. Warner, 18, Newman-street, W.
58. Ditto. Full-length Figure. By John Wilson, 14, Leicester-place, W.C.
59. Die Sinking. Head of Prince Consort. By Henry Allen, Franchise-street, Birchfield, near Birmingham.
60. Ditto. By John Parkes, Nursery-lane, Harbourn, near Birmingham.
61. Ditto. By John Hatchett, 5, Glo'ster-terrace, Kennington-park, S.
62. Ditto. By George T. Morgan, Regent-place, Wheeler-street, Lovells, Birmingham. Price £2.
63. Ditto. By W. A. Walker, 14, Montpelier-place, Brompton, S.W. Price £10.
64. Bookbinding after an Italian Specimen. By Louis Genth, 15, Broad-court, Bow-street, W.C. Price £8 8s.

SECOND DIVISION (WOOD-CARVING).

WORKS EXECUTED WITHOUT PRESCRIBED DESIGNS.

SECTION A.

Human figure in alto or bas relief. Animals or natural foliage may be used as accessories.

67. "Spring"; a Child's Head. By Mark Rogers, 111, Tachbrook-street, S.W. Price £10.
71. Bas-relief, in rosewood. By W. M. Holmes, 101, Dean-street, Soho, W. Price £2 15s.
72. Ditto. ditto. By the same. Price £2 15s.
77. Female Figure, in Oak. By Charles Liddle, 72, Pancras-square, N.W. Price £30.
78. "Hope for the Future." By T. W. Wallis, Louth. Price £31 10s.
83. "Repose." By E. Brew, 73, Sankey-street, Warrington. Price £5.
84. "Caractacus." By G. R.
85. Nymph and Loves. By G. F. Bridge, 3, Vincent-square, S.W. Price £7 7s.
86. "Morning." By same. Price £1 10s.
88. Door for an Ebony Cabinet. By E. Glancy, Rose-cottage, Alexandra-terrace, King's-road, S.W. Price £18.
89. John and the Mother of Christ. By J. W. Gould, 33, Bayham-place, Camden-town, N.W.
91. Cain preparing his sacrifice. By James Griffiths, 8, Addington-place, York-road, S. Price £20.

SECTION B.

Animal or still-life. Fruit, flowers, or natural foliage may be used as accessories.

66. Chimney Piece. By Miss Maude, care of F. H. Simpson, Esq., 34, Fore-street, E.C. Price £31 10s.
69. Envelope Case and Blotting Book. Walnut Wood. By T. Hewitson, 5, Hatton-garden, E.C. Price £16 16s.
74 and 75. Panels for a Sideboard or Cabinet. Walnut Wood. By W. J. Gibson, 94, Star-street, Edgeware-road, W. Price £14 the pair.
79. Wagtail and Fly. By T. W. Wallis, Louth. Price £21.
81. Panel of Flowers and Birds. By "*"

SECTION C.

Natural foliage, fruit, or flowers, or conventional ornament in which grotesque figures or animals may form accessories, preference being given where the work is of an applied character for ordinary decorative purposes, as representing commercial value.

65. Portion of Frieze. By George Murray, 6, Claremont-place, Henderson-row, Edinburgh. Price £14.
68. Vase, carved in Boxwood. By John Manhood, 37, Berwick-street, Pimlico, S.W.
70. Envelope Case and Blotting Book. Sycamore. By T. Hewitson, 5, Hatton-garden, E.C. Price £10 10s.
73. Tripod Stand. By W. M. Holmes, 101, Dean-street, Soho, W. Price £12.
76. Pair of carved frames. By George Bull, 8, Chalton-street, Euston-square, N.W. Price £14 the pair.

80. A Fragment of Autumn. By T. W. Wallis, Louth. Price £7.
82. Fruit panel. Walnut wood. By W. Taylor, 21, Newman-street, W. Price £6 6s.
90. Panel with Double Festoon, and three drops of carved flowers. By George Lock, 26, Albert-street, Camden-town, N.W. Price £50.
92. Frieze. By T. R. Smith, 7, Clarence-gardens, Regent's-park, N.W. Price (completed) £8.

Human Figure in Relief.

93. The Temptation. By Gerrard Robinson, 14, Duke-street, Manchester-square, W. Price £30.
94. Garibaldi. By the same. Price £16.
95. Hunter. By the same. Price £16.
96. Knife Grinder. By the same. Price £15.
97. Shakespeare. By the same. Price £16.
98. The Barber. By the same. Price £16.

87. Sleeping Child, carved in alabaster. By S. F. Bridge, 3, Vincent-square, S.W. Price £5 5s.

Proceedings of the Society.

Art-Workmanship Competition.

A meeting was held on Monday evening, the 2nd of January, at which the exhibitors and their friends were specially invited to attend. At eight o'clock the chair was taken by **Wm. Hawes**, Esq., who, in opening the meeting, said—

The object which the Council had in view in calling together the present meeting was to confer with the workmen themselves upon the system of Art-Workmanship competitions inaugurated by this Society, and to receive suggestions for carrying them out more effectually. [Mr. Hawes explained the nature of the examinations initiated by this Society in connection with the Union of Mechanics' Institutes, by means of which young men had the opportunity of displaying their knowledge and proficiency in various branches of learning, and thus received a stimulus to exert themselves in carrying on their education after leaving school.] In like manner the Society had initiated these competitions, in which the workmen could exhibit the results of their skill and proficiency in various branches of handicraft of an artistic character. He regretted that so small a number of persons had taken advantage of it, and that so few works had been sent in. He had been told that it arose mainly from the fact that the workmen had been so much employed during the year as to have but little leisure to attend to work in overtime. If this were so it was a healthy sign. He had also been told that in selecting the examples the Council had not sufficiently attended to the point that the article to be worked should have a saleable character, and, further, that not sufficient publicity had been given to the competition, so that the various trades were not sufficiently made aware of it. Whether that were so or not he could not say; but means had been taken, by advertisement and by the distribution of programmes in the different workshops, to make the competition known, and more would be done in this direction next year if it were thought necessary. As it was, however, upwards of 600 persons had purchased examples at the Society's house. It was well known that, in 1851, the Exhibition showed how deficient this country was in art-workmen. In 1862, the Exhibition showed a very marked improvement in this direction, and the French Government sent over a Commission to inquire into the causes of it. He (the Chairman) believed it might be attributed mainly to the efforts made at South Kensington, by means of schools of design and otherwise, to improve the art-education of the people. There was, however, much still necessary to be done, and the Society of Arts stepped in, by the offer of prizes, to aid, as far as it could, in stimulating progress, and to do this in a manner not taken up by the Government. He would now ask the meeting to discuss freely the system established by the Society of Arts, and the Council would be glad to hear suggestions and criticisms from any of the working men present. The Council had been told in some quarters that the time laid down in the programme for the execution of the works had not been sufficient, and that the prescribing of designs had fettered the workman, who ought to be left free to exercise his genius and his fancy as he liked. In this he would reply, that though prescribed designs were included in the conditions relating to one portion of the programme, yet, as regards wood-carving, there was a department in which the workman was left free to do as he pleased. On these and various other points he would ask the meeting to express their views.

Mr. **Nichols** (silver chaser) said, in his opinion, it was beneficial that the Council should select and prescribe designs as they had hitherto done. He suggested that the decision as to prizes should be given as soon as possible after the works were sent in. He thought a twelvemonth ample time for the execution of the works for competition, but hoped that more publicity would in future be given. He suggested that in the selection of the designs and examples by the Council advice might with advantage be taken from some of the workmen, both as to the nature of the subjects and the nature and amounts of the prizes.

Mr. **Mc Kenzie** (silver engraver) said he had come expressly from Sheffield to attend this meeting He thought, as far as his own trade was concerned, ample time was given. Trade had been good during the year, and left the men little leisure for this work in overtime, and this he considered might account for the small number of works sent in.

Mr. **Mackie** (wood-carver) said the men had been too busy this year to give time to the competition. He thought a twelvemonth's time would be best, but certainly nothing less than six months should be given. The total amount of prizes offered was ample, but, in his opinion, the prizes should be small and more numerous, as likely to attract a larger number of competitors. He advised drawing and modelling to be added to the list for which prizes should be offered.

Mr. **Baker** (wood-carver) objected to competitions of this character. The present exhibition was like other exhibitions of a similar character, a failure. ("No, no.") He repeated it was a failure, for in many branches there was but one work sent in. Such a state of things could scarcely be called a competition. It must be a failure, because it was impossible for a man who had been hard at work all day to do justice either to himself or to his work in overtime. He then proceeded to remark upon some observations which had appeared in the Society's *Journal*, commenting upon the Society's programme of the competition, as by no means warranted, and which he thought were likely to discourage the workmen from competing. These exhibitions, if honest, had a tendency to distinguish the counterfeit from the real, and in so far as they did this they were beneficial. He was, however, afraid they were frequently not honest. It was well known that numbers of good men worked for others, and their works were shown probably as the work of one man, who reaped all the honour and benefit, whilst the man who actually deserved to be rewarded was passed by and lost. Let the Society take steps for catching the men of genius themselves, so that they might become known to the world. The working man of genius wanted something more than prizes—he wanted fame.

Mr. H. **Cole**, C.B., said he was glad there was some opposition displayed, for if they were all of one mind he feared that there would little good come of the discussion. He thought the objection that the Council were only offering money prizes, and not fame, scarcely correct. In one division of the competition the wood-carvers were free from all trammel, and could exercise their genius and talent in any manner they liked. He did not agree with the last speaker that the present exhibition was a failure. He thought the present competition by no means unsatisfactory. The execution of the work showed a decided advance over that of last year. He, however, agreed with one of the speakers as to the importance of drawing and modelling, but he did not think, therefore, that they ought to be included in the Society's offer of prizes. It should be recollected that the competition was in art-workmanship; and, as far as drawing and modelling were concerned, there was plenty of competition in each at South Kensington, where prizes and medals were largely given in both subjects. The schools in which these were taught, and where government prizes might be obtained, were easy of access, and at very trifling fees, in every part of the metropolis. Original design required other qualities than art-workmanship did, though no doubt an art-workman was all the better if he could draw, and better still if he could design. For design the government offered rewards, but he did not consider it the duty of government to offer prizes for art-workmanship; that duty he thought properly devolved upon the Society of Arts. He did not agree with those who advised the bringing in as judges persons connected with the trade; he, on the contrary, thought it extremely important that the judges should be men thoroughly independent of all connection with the trade.

Mr. Stewart Harrison (a builder) thought exhibitions of this character were contrary to the spirit of the age, an age which sought rather to convert men into mere machines. The cry for cheapness was the cause of this. One man alone could do nothing; each man was kept to one portion of a work alone. He knew an instance where a man was kept from one year's end to another carving egg and tongue mouldings, and did nothing else. He was permitted to have no other aspiration; his energies and talent were cramped and confined. The movement now taken up by the Society was in the right direction to counteract this debasing influence, and the Council were engaged in a great and noble work.

Mr. P. Graham—If the exhibition was small, it was gratifying to hear that it was caused by the full employment of the workpeople. The Council were glad to have the opportunity of hearing the various opinions of the working men, and diversity of opinion could not fail to be attended with benefit. One thing, however, was clear, that in speaking of the time necessary to be allowed to competitors for executing their work, the period would always depend on the state of trade, as affecting the leisure of the workman. He could, from his own experience, confirm the statement as to the full employment of the men last year, and he was not surprised at the smallness of the exhibition, but, on the contrary, he was surprised there were so many works sent in. All the observations which had been made that evening went to show that the Society was on the right track, but time was required to develope the scheme. There was some diversity of opinion as to the amount of the prizes. He thought the present scale was the right one. No doubt a larger number of smaller prizes might produce more works, but he thought of less value.

Mr. Letheren (smith)—If there were disadvantages affecting the workmen in London, they were nothing as compared with those affecting the workmen in the country. The former had opportunities of inspecting the actual works themselves, whilst the country workman must content himself with the photographs or casts. As regarded amount of overtime at the disposal of the workman, he thought this depended much on the man himself. Where there was a will there was a way. He spoke as a smith, and all knew that a smith's work was not of a very light character. All the work he had sent in was done in overtime. He questioned very much what had been said by one of the speakers as to the work of men being sent in as the masters'.

Mr. Allen (a coachmaker) was not aware till within the last few days that there was any such competition or exhibition as the present. He thought sufficient publicity had not been given to it. In his opinion, however, the evening labour of men in their overtime was not likely to produce good results. He thought, too, that the working men who had ideas would be chary of displaying their designs and giving them to the public.

The Chairman said it must be remembered that, as regarded one division of the programme, the examples were from approved and selected works, and were supplied to the workmen, whilst in another division the wood-carvers had full scope for display of their invention, genius, and talent. He thought that the workman need not be afraid of exhibiting his design, for he felt assured that if it displayed talent it would lead to employment. The great principle on which the whole competition was based, was that of bringing out the talent of the individual workman himself. Such a competition as this distinguished the counterfeit from the true. As to the time for execution, last year it extended from February to November, and, from all he had heard that evening, he concluded it was sufficient. He was not disappointed at the result of the present year's Exhibition, it was in the nature of such movements to be small at first, and he felt assured they would grow. Take the Examinations of the Society, commenced seven years ago with 52 candidates, whilst last year the candidates examined had amounted to 1,200. He did not agree with the remark that competition was injurious. He was glad to see so good an attendance that evening, and in the name of the Council expressed the pleasure it afforded them of meeting the workmen, and hearing their observations, which he was sure would meet with every consideration. The competition would be renewed next year, he hoped, on a more extended scale, and every means would be taken to ensure its being made known to those interested, and he had every confidence it would be well responded to.

The meeting then adjourned, and tea and coffee were served in the library.

Proceedings of Institutions.

Macclesfield Useful Knowledge Society.—The annual meeting and distribution of prizes of this society took place in the Town Hall, on the 8th of November, being the 29th anniversary. E. C. Egerton, Esq., M.P., one of the Vice-Presidents of the Society, took the chair, and observed he was glad to be able to congratulate the committee of the Institution on the increased strength of, and attendance at, the female and juvenile classes. At the same time it was a matter of deep regret that the society—but more particularly, perhaps, that department relating to the School of Design, did not receive that amount of support which it was entitled to, considering the peculiar circumstances of the town and the nature of the manufactures carried on within it, and considering, too, the fact that the prosperity of the town was dependent in a great measure upon the beauty of the design of its fabrics. Among the students to whom prizes would be awarded were those who had gained honours in connection with the School of Design, and it was in regard to that department of the Institution that he wished to say a few words. The meeting was no doubt aware that during the last session of Parliament a committee had been sitting upon the subject of Schools of Design. Many complaints had been made in various parts of the country, that of the large sum of money asked from Parliament, amounting to £100,000 for Schools of Art, a very great proportion was absorbed in the South Kensington Museum, and that only a very small sum indeed found its way into the provinces. The mode of payment, too, adopted by the Government, excited a great deal of discontent on the part of many masters of

Schools of Design. Instead of paying, as formerly, on certificates, carrying with them a payment of £10 each (one master sometimes having as many as five), government determined to pay on what they called "results," these results being confined to the number of medals taken by the artizan class. One evil arising from this mode of payment was, that it excluded those Schools of Design that did not include among their members students of the artizan class, and it was in consequence of the many complaints made that a committee of the House of Commons was appointed, of which he had the honour of being a member. That committee sat two months during the last session, and any one who would take the trouble to look into the blue book relating to it would find there a good deal of valuable and interesting information. They would see the whole history of Schools of Design from their first commencement, and the testimony given of them by such men as Sir Charles Eastlake, Dr. Maclise, and other practical men of science and art; at the same time he (the chairman) was bound to admit that the weight of evidence was against the alteration proposed by the government. The great increase which had taken place in the Schools of Design since their establishment was something amazing. In 1852 the whole cost of the several Schools of Design in London and the provinces amounted to about £15,000; it was now nearly £90,000; and the question very naturally arises, are the results equal to this large outlay? He thought he should be justified in saying that the country had received substantial benefits in the shape not only of higher tastes among the artisan class, but more intellectual refinements, which had exercised a beneficial influence on both the middle and the working classes, and much of this he believed was attributable to Schools of Design, and institutions such as that in support of which they were met that evening. The Honorary Secretary next read the report. During the past year the number of members has been:—Honorary, 198; ordinary, 189; female and junior members of classes, 113; making a total of 500. The classes are constituted as follows:—

Adult.	Teacher.	Avge. Att.	No. on. Books
Arithmetic	Mr. S. Wood	25	46
Reading and Writing	Mr. Botheras	16	52
Grammar	Mr. Barber	13	22
Geography and History	Mr. Botheras	12	49
Chemistry	Mr. Wire	—	—
French	M. Dumont	7	—
Singing	Mr. Hambleton	15	20
Female.			
General Instruction	Mr. Malburn	26	45
Sewing	Mrs. T. Jeffery	17	
Juvenile.			
General Instruction	Mr. Malburn, jun.	38	70

The Committee have great pleasure in noticing the improved state of the classes, and especially rejoice in the continued prosperity of the junior class, because they believe that the chief good here obtained is not so much in the amount of knowledge gained as in the mental habits induced, and yet still more in the moral habits induced through these. During the past year the students have passed through three examinations—the first, that of the Society of Arts in its preliminary and final stages; the second, that of the Government Department of Science and Art; and the third, our own, conducted by the members of the Class Committee. The circulation of the works in the library has been 11,500 volumes, a less number than during the year 1863; but the committee are pleased to report that the works read have been of a higher character than of late years, literature of a scientific class having been much more in demand. Only about 50 volumes have been added to the library. During the past year several lectures and entertainments have been provided by the Committee: J. C. Buckmaster, Esq., B.A., F.C.S., delivered a lecture upon "The Advantages of a Knowledge of Science and Art;" the Rev. J. J. Wray, a lecture upon "Venice;" a concert under the conduct of Mr. Ellis Roberts, harpist to H.R.H. the Prince of Wales; a dramatical and musical entertainment, kindly given in aid of the society by Messrs. Nosworthy, Smith, and Gregory, of the Manchester Amateur Societies; and more lately, a concert conducted by Mr. Twiss. These lectures and concerts have proved more successful than those held for some time previously. The committee having noticed the success of the "Penny Readings" in the town, and having learnt that they were not to be continued this season, decided to arrange a series of "Monday Popular Entertainments," which should in a measure aim to serve the same good purpose, and also aid in bringing the Society more constantly before the notice of the public. Three of these entertainments have been held, each one attended by a numerous and interested audience. The committee cannot, however, forbear naming how far their efforts in this direction are partially frustrated by the want of a suitable music and lecture hall.

DUBLIN INTERNATIONAL EXHIBITION, 1865.

Scotland has taken up representation at the Dublin Exhibition with characteristic energy. The Provosts and Chief Magistrates of Edinburgh, Leith, Dundee, and Aberdeen, &c., head the movement. It is expected that Edinburgh will send as much to Dublin as to the last London International Exhibition. The Committee at Edinburgh includes the following influential persons:—The Lord Provost, Bailie Cassels, Bailie Alexander, Bailie Hill, Bailie Handyside, Bailie Falshaw, Bailie Miller, George Lorimer, Henry Callender, Adam Beattie, Charles Macgibbon, James MacKnight, John Kay, Thomas Dryborough, James Ford, the Master of the Merchant Company, the Chairman of the Chamber of Commerce, the Dean of the Faculty of Advocates, the Deputy Keeper of the Signet, the Preses of the Society of S.S.G., the Preses of the Society of Chartered Accountants, the Presidents of the Royal Scottish Academy, of the Royal Scottish Society of Arts, of the Royal College of Physicians, of the Royal College of Surgeons, the Provost and Magistrates of Leith, the President of the Merchant Company, and the President of the Chamber of Commerce of Leith.

Turning to the Continent, we find that from Brussels the list of demands already numbers 110 applicants in the Industrial Department, and 117 artists. Two organs are offered, and a large number of other musical instruments.

Forty of the best artists of Düsseldorf have given their adhesion, and a large number of the Scandinavian painters, headed by M. Adolph Tidemand. Munich will furnish cartoons of the most celebrated artists, and all the leading painters will contribute, including Kaulbach, Schwind, Piloty, Froltz, and Schraudolph.

Great interest is manifested among the industrial and commercial classes of Prussia in regard to the forthcoming International Exhibition of Industry and Fine Arts in Dublin. This is especially true of the manufacturing districts of Rhineland and Westphalia. The Commercial and Industrial Society for Rhineland and Westphalia, whose domicile is in the flourishing Rhenish city of Dusseldorf, at its last general meeting appointed its committee to be the local committee for advancing the objects of the Exhibition in the two provinces in question. In Dusseldorf, too, resides Herr Von Sybel, who has been appointed by the Dublin Committee as its commissary for Prussia. In all the principal papers of Berlin, and, indeed, of Prussia at large, this gentleman has inserted advertisements inviting the commercial and manufacturing classes in all parts of this country to become exhibitors. The response on the part of the latter has turned out so far highly satisfactory, and Prussia may be expected to make a very respectable show in the Dublin Exhibition during the coming summer.

STRATFORD INDUSTRIAL EXHIBITION.

On Tuesday, the 27th December, a meeting took place in the buildings of the National Schools belonging to St. John's Church, Stratford, to open an Industrial Exhibition of works of art and manufactures, for the purpose of raising funds for the completion of a Workmen's Hall and Club for the artisans now congregated in the populous parishes of West Ham, Stratford, &c.

This movement has been most warmly taken up and promoted by the inhabitants generally, and the schools on this occasion were filled to overflowing by the ladies and gentry of the neighbourhood. The exhibition of paintings, water-colours, and drawings especially attracted attention, many of them by amateurs, which were contributed for sale in aid of the funds of the proposed Institution. There is also a large collection of objects of natural history, mechanical contrivances, and manufactures. The proceedings commenced at twelve o'clock, by the choir singing the Hallelujah Chorus. The secretary then called upon the Rev. A. J. Ram, the vicar of the mother parish, to open the exhibition, and in doing so expatiated on the benefits of such exhibitions as this, and of the blessings which a hall and club were calculated to confer on the working classes. He congratulated the meeting on the success which had crowned the labours of the Committee (mostly working men), and complimented them upon having been able to collect so large a display of works of industry and art.—Mr. Antonio Brady then addressed the meeting, and in doing so said he felt it a great honour to be associated with this movement, and had lent his choicest pictures and works of art with the greatest pleasure. He could only attribute his being called upon to speak first, to his position as one of the trustees of the schools, and to his taking so great an interest in the cause of education. He felt that this exhibition was education in the highest and truest sense of the word, and it afforded him much satisfaction that the trustees had lent the schools as desired. Mr. Brady then spoke to the working men, and showed the vast difficulties of artisans in earlier times contrasted with the present. He directed attention to the remains of the mammoth on the table, which he had lately procured from a neighbouring brick-field, being part of one of very many of those ancient inhabitants of Stratford whose race was now extinct upon the earth. He then pointed to the magnificent collection of flint and other stone tools in the adjoining cases, some of which had been used by man, the contemporary of the mammoth and other extinct mammalia which formerly roamed in these districts in countless numbers, the quantities of mammalian remains found in this neighbourhood being almost fabulous. The flint tools consisted of axes and tomahawks from Amiens and Abbeville in France, and hammers, chisels, saws, knives, spear-heads, daggers, sling-stones, &c., from the lower peat formations in Denmark. Mr. Brady shortly described the age of those instruments by the flora of the then existing country. He stated that the Danish antiquaries and naturalists, Professors Nilsson, Forchammer, Thomsen, Worsäae, and others, have succeeded in establishing a chronological succession of periods, which they have called the ages of stone, of bronze, and of iron, named from the materials which have each in their turn served for the fabrication of implements, specimens of each of which Mr. Brady had lately obtained in Scandinavia, and had placed on the tables. The age of stone in Denmark was represented by the period when the Scotch fir flourished, and is the principal vegetation found with the flint and other stone tools at the bottom of the peat formations. The bronze age coincided with the time when the Scotch fir had given place to forests of oak, bronze tools, swords, spears, shields, &c., being found in the middle peat associated with acorns and stems of the oak. This was succeeded by the dawn of the present period, and is represented by iron tools, much of the same character, found on the top growth of the peat, associated with forests of birch and beech, the oak and the Scotch fir being now only found in these parts in a state of cultivation. It would seem, at first sight, strange that primitive man should first have fashioned his tools of a compound metal—bronze; but as iron is mostly only found in the state of an oxide, and the other metals of which bronze is compounded often occur in a metallic state, it is only natural that man should have first learned the use of them, the chemical knowledge necessary for the reduction of iron showing an immense stride in civilisation and the arts. The tools make it apparent that weapons of defence and offence were the first necessities of our race, "when wild in woods the noble savage ran." He used flint knives to skin his animals for clothing and food, and made wedges and axes to fashion wood for his hut, or to hollow out trees for his tiny bark, wherein he pursued good old Isaac's gentle art with spear and arrow-heads wherewith to kill his game; and, for truth's sake be it added, with daggers and other offensive weapons, it is feared, for a less holy purpose. We thus trace, by means of these antiquities, the progress of man by slow degrees, until after the lapse of countless ages (how many is known only to Him to whom a thousand years are as one day,) we are able to compare these ancient tools, which date from the era when the mammoth and the rhinoceros walked this earth, with the elaborate and exquisitely-finished machine tools of the present day. We thus see how the flint arrow-head has given place to the Minie rifle or the Armstrong gun; we can point to the iron horse of the railway, which never tires; to the steam-engine printing-press; and the electric telegraph, which latter is doubtless the greatest achievement of man in subduing the elements to his service. We span the earth as it were with a girdle, and catch a flash of lightning wherewith to convey our thoughts through the sea to the uttermost parts of the earth. Yet, to show that civilisation is not complete, and that man still lives in remote islands without the use of improved materials, Mr. Brady pointed to a fish-hook made of wood, and to a tomahawk with a stone axe for its cutting edge, which his brother lately brought from the Louisiade Archipelago, where metals are still unknown. Thus, interchange of thought and comparison of what one man can do with the work of another is the great means of progress and the great advantage of such exhibitions as these. Lord Bacon truly says, "Knowledge is power, and is the accumulated wisdom and experience of all men and all ages." Then let us profit by such educational exhibitions as these. After some further remarks of a general nature, the speaker paid a warm tribute to the exertions of the Committee by whom the rooms had been so beautifully decorated and arranged; and especially, he thought, that a vote of thanks was due to Mr. and Mrs. Warner and family—the first idea of this Hall and Club, now on the point of being realised, being due to Mrs. Warner.

The meeting was then addressed by Mr. Bassett, an artisan; Mr. C. Tanner; and Mr. Johnson, a working man.

The National Anthem was effectively sung by the choir. The Rev. Mr. Keogh then moved a vote of thanks to the Vicar for presiding, which was seconded and carried unanimously.

The Rev. A. J. Ram briefly responded, and formally declared the exhibition open.

ON PERFUMES, FLOWER FARMING, AND THE METHODS OF OBTAINING THE ODOURS OF PLANTS.

By Septimus Piesse, Ph. D., F.C.S.

The following lecture has been delivered before the Royal Horticultural Society, and illustrated with living plants:—

Perfumes that are derived from plants, may be, for the purpose of description, conveniently divided into three classes.

Class I. are the most ancient, and have been in use from the earliest period of which there is record. They consist of the various odoriferous gum-resins, which exude naturally from the trees which yield them; and to increase the produce, the plants are often purposely wounded. The most important are benzoin, olibanum, myrrh, and camphor. No less than 5,000 cwt. of these together are annually imported into Britain. Gum-resins form the chief ingredients in incense and in pastilles.

We have here specimens of benzoin, myrrh, frankincense, camphor, and numerous others.

These odorous bodies are principally consumed in certain religious ceremonies, and from the early custom of burning incense upon the holy altar, our word perfume, from *per fumus* (by smoke), has been derived.

You will find displayed here some fine specimens of art workmanship in the contrivances for burning incense, and like bodies for fumigation.

We may include in this class all those parts of plants which are fragrant, such as the long seed-pod of the vanilla plant; the bean of the *Dipterix odorata*, or tonquin bean, which our grandfathers carried in their snuff boxes; the root of the *Iris florentina*, or orris root, about 25 tons of which are consumed every year by Britannia at her toilet; the rhizome of an Indian grass, known as vitivert or kus-kus; fragrant woods, such as the santal, and the myall, or violet wood of Australia; odoriferous seeds, as carraway and nutmeg; in fact, our first division includes every vegetable substance which has a pleasing fragrance, like some dried flowers. Perfumers grind these several bodies to powder, then mix them in various proportions; the results are, the various sachet powders in such universal use, *i e.*, examples of which are now given.

Class II. are those perfumes which are procured by distillation. This is the first step to separate the odorous principle from the material which contains it. As soon as the Greeks and the Romans learned the use of the still, which was an invention imported by them from Egypt, they quickly adapted it to the separation of the odorous principle from the numerous fragrance-bearing plants which are indigenous to Greece and Italy. An essential oil, or otto, thus procured from orange-flowers bears in commerce to this day the name of Neroly, supposed to be so named after the Emperor Nero. Long before that time, however, fragrant waters were in use in Arabia, as all may learn who read the Arabian Nights. Odour-bearing plants contain the fragrant principle in minute glands or sacs; these are found sometimes in the rind of the fruit, as the lemon and orange; in others, it is in the leaves, as sage, mint, and thyme; in wood, as rosewood and sandal wood; in the bark, as cassia and cinnamon; in seeds, as carraway and nutmeg. These glands or bags of fragrance may be plainly seen in a thin cut stratum of orange-peel, from which the otto may be easily pressed out on to paper; so also in a bay leaf, if it be held up to the sunlight, all the oil-cells may be seen like specks. All these fragrant-bearing substances yield by distillation an otto peculiar to each; thus is procured otto of patchouly from the leaves of the patchouly plant, *Pogostemon patchouly*, a native of Burmah; otto of carraway, from the carraway seed; otto of geranium, from the leaves of the *Geranium rosa;* otto of lemon, from lemon peel; and a hundred others of more infinite variety.

All the various ottos are very slightly soluble in water, so that in the process of distillation the water which comes over is always fragrant. Thus elder water, rose water, orange water, dill water, are, as it were, the residue of the distillation after obtaining the several ottos. A variety of these fragrant waters will be found here. We may distil so much of the plant with water as is just sufficient to render the water fragrant without any otto floating upon it. This is the practice when the water alone is the object of distillation. The process of distillation is very simple; the fragrant part of the plant is put into the still and covered with water; and when the water is made to boil, the ottos rise along with the steam, are condensed with it in the pipe, and remain floating on the water, from which they are easily separated by decanting. Models of the still are here shown, and on the wall we have a sectional diagram of this wonderful instrument. In this way 100 pounds of orange, lemon, or bergamot fruit peel will yield about 10 ounces of the fragrant otto; 100 pounds of cedar wood will give about 15 ounces of otto of cedar; 100 pounds of nutmeg will yield 60 to 70 ounces of otto of nutmeg; 100 pounds of geranium leaves will yield 2 ounces of otto. A simple mode of procuring the ottos from orange, lemon, and bergamot is practised in Italy. The fruit is rasped, the pulp produced is then pressed. The odours of the fruit thus procured are much finer than those obtained by distillation.

Every fragrant substance varies in yield of essential otto. The variety of ottos are as numerous as fragrant plants; but there is a certain relationship among odours as among tints. The lemon-like odours are the most numerous, such as verbena, lemon, bergamot, orange, citron, citronella; then the almond-like odours, such as heliotrope, vanilla, violet; then spice odours, cloves, cinnamon, cassia. The whole may be classified into twelve well-defined groups. All these ottos are very soluble in alcohol, in fat, butter, and fixed oils. They also mix with soap, snuff, starch, sugar, chalk, and other bodies, to which they impart their fragrance. And it is thus that we are enabled to transfer the odorous principle from the plant that produces it to an inodorous body, wanting fragrance alone to make it of commercial value.

The principal consumption of the various fragrant ottos is for scenting soap. Windsor soap, almond soap, rose soap, and a great variety of others, consist of various soaps made of oil and tallow, perfumed while in a melted state with the several named ottos or mixtures of them.

Though snuff is by no means so popular an article in the reign of Victoria as it was in Anne's time, yet the increased population, and still more increased exports to colonies, cause a much larger production of scented snuff now than was the case fifty years ago; snuff perfumed with bergamot is especially in demand in the fur countries of Northern Canada. There is a large consumption of fragrant essential oils in the manufacture of toilet powders. Under the various names of rose powder, violet powder, &c., a mixture of starch and orris root powdered, differently scented, is in general demand for drying the skin after the bath.

More than 200,000 pounds weight of various ottos were imported into Britain in 1860, and valued at over £180,000; to this must be added at least one-third as much again distilled in England. Of the imported articles enumerated, oils of lemon and bergamot, from the Two Sicilies, reached 128,809 pounds, valued at £57,054.

Samples of various ottos are to be seen here, and so far as is practicable you will find also the living plant, or dried specimen, from which the odour is derived.

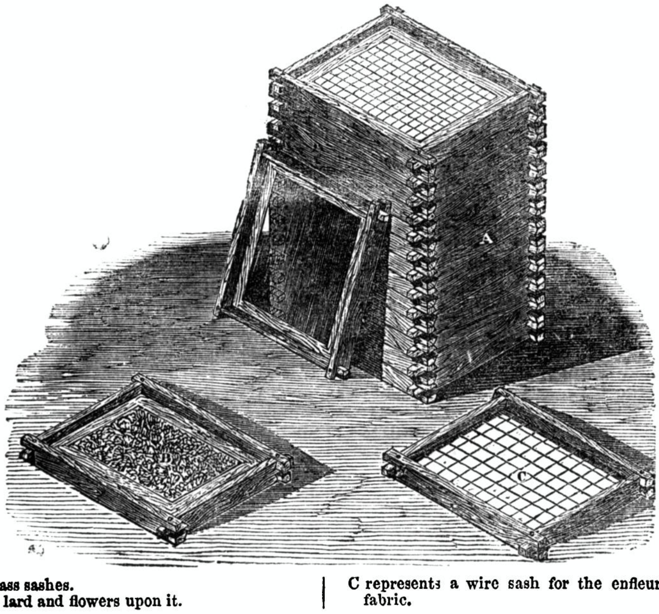
We now pass to Class 3.—These are the perfumes proper, such as are used for perfuming handkerchiefs. Contrary to the general belief, nearly all the perfumes derived from flowers are not made by distillation, but by the processes of *enfleurage* or inflowering, and by maceration or infusion.

The odours of flowers do not, as a general rule, exist in them as a store or in a gland, but they are developed as an exhalation. While the flower breathes it yields fragrance; but kill the flower, and fragrance ceases. It has not been ascertained when the discovery was made of condensing, as it were, the breath of the flower during life; what we know now is, that if a living flower be placed near to butter, grease, animal fat, or oil, these bodies absorb the odour given off by the blossom, and in turn themselves become fragrant. If we spread fresh unsalted butter upon the inside of two dessert-plates, and then fill one of the plates with gathered fragrant blossoms of clematis, covering them over with the second greased plate, we shall find that after twenty-four hours the grease has become fragrant. The blossoms, though separated from the parent stem, do not die for some time, but live and exhale odour; which is absorbed by the fat. To remove the odour from the fat, the fat must be scraped off the plates and put into alcohol; the odour then leaves the grease and enters into the spirit, which thus becomes "scent," and the grease again becomes odourless.

The flower farmers of the Var follow precisely this method on a very large scale, with but a little practical variation, with the following flowers—rose, orange, acacia, violet, jasmine, tuberose, and jonquil. The process is termed, as said before, *enfleurage* or inflowering. In the valley of the Var, there are acres of jasmine, of tuberose, of violets, and the other flowers named; in due season the air is laden with fragrance—the flower harvest is at hand. Women and children gather the blossoms, which they place in little panniers, like fishermen's baskets, hung over the shoulders. They are then carried to the laboratory of flowers and weighed. In the laboratory the harvest of flowers has been anticipated. During the previous winter great quantities of grease, lard, and beef-suet have been collected, melted, washed, and clarified. The great success of this process depends on the absolute purity of the grease employed, and no pains are spared to this end. In each laboratory there are several thousand *chassis* (sashes), or framed glasses, upon which the grease to be scented is spread, and upon this grease the blossoms are sprinkled or laid. The *chasse en verre* is, in fact, a frame with a glass in it as near as possible like a window-sash, only that the frame is two inches thicker, so that when one châsse is placed on another, there is a space of four inches between every two glasses, thus allowing room for blossoms. Every châsse, or sash, is about two feet long by eighteen inches broad, as here seen. The flower blossoms are changed every day, or every other day, as is convenient in regard to the general work of the laboratory or flowering of the plants. The same grease, however, remains in the châsse so long as the particular plant being used yields blossoms. Each time the fresh flowers are put on, the grease is "worked"—that is serrated with a knife—so as to offer a fresh surface of grease to absorb odour. The grease being inflowered in this way for three weeks or more—in fact, so long as the plants produce blossoms—is at last scraped off the châsse, melted, strained, and poured into tin canisters, and is now fit for exportation. We have here specimens of fat thus inflowered.

In every moderate-sized flower laboratory there are employed from two to three thousand sashes.

Fat or oil is perfumed with these same flowers by the process of maceration; that is, infusion of the flowers in oil or melted fat. For this end, purified fat is melted in a *bain marie*, or warm bath, and the fresh blossoms are infused in it for several hours. Fresh flowers being procured, the spent blossoms are strained away, and new flowers added repeatedly, so long as they can be procured. The *bain marie* is used in order to prevent the grease becoming too hot from exposure to the naked fire; so long as the grease is fluid, it is warm enough. Oil does not require to be warmed, but improved results are obtained when it is slightly heated.



A represents a pile of glass sashes.
B represents a sash with lard and flowers upon it.

C represents a wire sash for the enfleurage of oil upon a cotton fabric.

We have upon the wall here a sketch showing the water-bath for melting the fat or warming the oil.

Jasmine and tuberose produce best perfumed grease by enfleurage, but rose, orange, and acacia give more satisfactory products by maceration; while violet and jonquil grease is best obtained by the joint processes—enfleurage followed by maceration.

We have here a *chasse en fer*, this is for the enfleurage of oil. In the place of glass, the space is filled with a wire net; on which is laid a *molleton*, or thick cotton fabric—moleskin, soaked with oil; on this the flowers are laid, just as with solid grease. In due time—that is, after repeated changing the flowers—the oil becomes fragrant, and it is then pressed out of the moleskin cloth. Oil of jasmine, tuberose, &c., are prepared in this way.

There is certainly something inscrutable to an Englishman about olive oil; he only knows it as it were with a lamp-like odour; but the olive oil that is pressed from the native fruit of the Valley of Cannes, has less taste and less odour than the finest Aylesbury fresh butter. Such oil therefore is admirably adapted for inflowering for it is obvious that bodies which have no odour of their own, are more easily perfumed than those in which the original odour has to be overcome before they smell of the substance with which they are odorated.

In order to obtain the perfume of these flowers in the form used for scenting handkerchiefs, we have to infuse the scented fat or oil, made by any of the above methods, in strong alcohol.

In extracting the odour from solid fat, it has to be chopped up fine, as suet is chopped, or melted, and then put into the spirit, and left to infuse for about a month. In the case of scented oil it has to be repeatedly agitated with the spirit. The result is that the spirit extracts all the odour from the fatty body, becoming itself "perfume," while the grease again becomes odourless; thus is procured the essence of jasmine, essence of orange flowers, essence of violets, and others already named, rose, tuberose, acacia, and jonquil.

It is remarkable that these flowers yield perfumes which, either separate or mixed in various proportions, are the types of nearly all flower odours; thus, when jasmine and orange flowers are blended, the scent produced is like sweet-pea; when jasmine and tuberose are mixed, the perfume is that of the hyacinth. We will practically exemplify this; thus all the various bouquets and nosegays, such as "frangipanni," "white roses," "sweet daphne," are made upon this principle.

The commercial importance of this branch of perfumes may be indicated by the quantity of flowers annually grown in the district of Cannes. Flower harvest: Orange blossoms, 1,476,000 lbs.; roses, 530,000 lbs.; jasmine, 100,000 lbs.; violets, 75,000 lbs.; acacia, 45,000 lbs.; geranium, 30,000 lbs; tuberose, 24,000 lbs.; jonquil, 5,000 lbs. The quantity produced at Nice I have been unable to ascertain; with violets and orange there are more, but with cassie less, than here stated.

In growing flowers for perfumery the item of wages is, of course, important. In the Valley of the Var, the summer wages are 2s. 4d. a day for those men who do the heavy work of the fields, and 1s. 1d. a day for the women who attend to the flowers. In winter, which is but of short duration, the wages are 2s. a day for men, and 10d. for women.

Nothing can be simpler or more primitive than the farming operations. Roses for example. The field is first scantily manured, especially with the refuse matter left after the distillation of various plants; it is then ploughed with oxen at the yoke. Young plants of roses, procured from layers, in the usual way, by tongueing and layering at a joint, are then planted, and Nature does the rest. The cabbage Provence rose is the kind cultivated. In the second year a considerable quantity of flowers appear, but it is not until the fourth year that they are fully developed. A plantation of roses well tended will last from six to eight years; but for this the land must be well drained. It requires about 7,000 rose plants to cover an acre, and this acre will produce, in an average season, 5,000 pounds' weight of roses of the value of 1d. to 1½d. per pound, yielding, say £30 an acre.

For cassie (*Acacia farnesiana*) the land is prepared in a similar way. The young plants are raised from seed, which is sown in beds. The best plants are left, the doubtful ones removed. In the third year they have generally a height of two or three feet, and are then planted out in fields, each tree requiring about twelve feet square. The blossoms of the cassie are successive, some being ready for plucking while the others are scarcely formed. This is immensely useful to the farmer, one lot of blossoms being gathered and passed through the laboratory before it is time to gather the others. After the third year the tree produces flowers, growing at the same time till they attain maturity, when they reach a height of ten or twelve feet, with branches six feet long, and a stem as thick as a man's wrist. Each full-grown tree will produce about two pounds' weight of flowers, value from 3d. to 4d. per pound, say £30 to £40 per acre.

The jasmine is cultivated by slips of the wild jasmine (that which is seen in our English gardens) grafted, at the end of two years, with the Spanish jasmine (*Jasminum grandiflorum*). This produces a blossom the size of a shilling, of intense fragrance. It requires about 8,000 plants to stock an acre; and they are not in full bearing till the second year after grafting; but when mature, every thousand plants yield about sixty pounds' weight of flowers annually. They are planted in rows, horizontal poles being thrust between them for support, the branches are woven in and out, somewhat as the raspberry canes are arranged by the Chiswick gardeners. Every August —the jasmine season—the fields are alive with women, old and young, and children, each having a little basket at her side suspended by a strap across her shoulders, both hands actively engaged in picking the flowers, and filling the baskets. As each basket is filled it is conveyed to the shaded laboratory and there weighed. An acre of land will yield about 500 pounds' weight of jasmine blossoms. The value of the blossoms varies from 1s. to 1s. 6d. per pound.

The tuberose needs more care than any other flower of the farm. It is the most difficult to rear, but the best worth rearing. A good plantation on a good soil will last for seven or eight years. It is a bulbous plant, and propagates as they do; it throws out a stem like a hyacinth, covered with fleshy flowers. And oh! what a fragrance breathes from it! what a bouquet, snatching perfumes from every flower with a superb eclecticism!

> "The Tuberose, with her silv'ry light,
> That in the garden of Malay
> Is called the mistress of the night,
> So like a bride, scented and bright,
> She comes out when the sun's away."

Orange-trees are raised from seeds; at the third year they are grafted, either with the sweet Portugal or bitter Bigaradier. A tree requires fifteen years to reach maturity, but will produce both flowers and fruit in four or five years. When in full vigour, each tree yields an average of twenty-five pounds' weight of blossoms annually. Many plantations of orange-trees at Nice are more than one hundred years old. At Fontainebleau there are now to be seen orange-trees planted by an ancestor of mine two hundred years ago. At Nice there is a public market for orange-blossoms during the season; the bitter orange-flowers fetch 3d. per lb., the sweet about 2d.

The orange-tree yields not only the exquisite odour of the flowers by the enfleurage process, of which there are several examples here, but also the otto from the flowers by distillation; there is also quite a different smelling otto from the epidermis of the fruit, as here shown, and also a very fine otto from the leaves.

The market season for orange-flowers at Nice lasts for more than a month, as an average, and during that time there are sold about fifteen to eighteen tons of flowers daily! a ton of flowers will yield more than a kilogramme of otto, say forty ounces, worth £20 sterling; and the residuary water, highly saturated with odour, is worth another £10 note.

With us the violet grows anywhere, and almost anyhow; but the terrible sun of Nice, during July and August, is but ill borne by the violet. Consequently, on the farms they are planted under the green shade of the orange and lemon trees, or close to walls and houses. The method of propagation is division of the roots. They are planted so as to grow in tufts or clusters about a foot apart all round; and this space enables the growers to gather the flowers without treading on them. A surface of land, equalling an acre of planting, yields one hundred and eighty to two hundred pounds' weight of flowers, valued as an average at two francs the pound. Violets may always be looked upon as an extra crop, growing as they do under the orange and lemon trees. The kind grown is the double Parma. About twenty-five tons weight of violet blossoms are produced annually at Nice.

Oak-leaf or rose-leaf geraniums are grown for the sake of the rose-like odour extracted by distillation from their leaves. A ton of leaves will yield about a kilogramme, or rather less, of otto. The geranium is propagated by cuttings made in September, which are planted out in the spring.

Rosemary, lavender and thyme are also grown to a vast extent. One can hardly say "cultivated," since they grow like the broom and heath on the wild wolds of Yorkshire. Any quantity may be found on the high regions of the Maritime Alps. Those persons who seek for the ottos of these plants carry the distilling apparatus up the hills upon the backs of mules, while they encamp themselves in tents near to some snow stream.

England has always been famous for the production of lavender, and farms of it exist at Carshalton and Mitcham, in Surrey; also at Hitchin, in Hertfordshire. It requires about 3,500 plants to an acre, and when the plant is in full bearing we can procure from this quantity about six to seven quarts of otto, which, at the present price of 54s. per lb., a good average price of ten years, yield £32 per acre.

Although the mode of obtaining the odours from flowers by enfleurage and maceration, has certainly been in practice for two centuries in the valley of the Var, in the south of France, it is only by my publications that the method has been made generally known in England.

The works published relating to perfumery are very few. In France, where this commerce has risen annually to the value of £3,000,000 sterling, there are no published accounts or statistics by a native author, relating to flower farming. My own little book, "The Art of Perfumery," has recently been translated into French, by Dr. Baveil, of Paris, and is published by Ballière. No cyclopædia, which is more than ten years old, makes even mention of the inflowering process, as a source of entrapping the exquisite odour of flowers, nor do any of the multitude of books relating to economic gardening, notice this fact.

No wonder then that gardeners and horticulturists generally, are unacquainted with this simple source of wealth, and if I interpret right the object of the Council of this Society now in bringing the subject of the odours of plants before the fellows, it is that young gardeners, aspiring to emigrate to some of the warm British Colonies, may eventually lay there the foundation of a flower farm and perfume laboratory, such as can only now be seen on the banks of the Var.

Fine Arts.

Art in Ireland.—The following letters have been addressed to the editor of the *Times*, in answer to a leader, in which some remarks disparaging to Irish Art were made:—

"Sir,—A word or two, if you please, in answer to some of your assertions that "art is not in Irish people," and that "in Ireland, nature and art do not get up their usual friendship" and to your "doubts of the possibility of an Irish School of Art." Ecclesiastes tells us whatever has been shall be; and it is the fact that in some remote age there was an Irish School of Art, one as marked as the Etruscan, of the truth of which a visit to the Irish academy will satisfy you. You will find there a collection of ornament in gold which in quantity rivals that at Naples or Rome, and in artistic quality is not inferior to the works of the Greeks. The book of Kells and other illuminated MSS. on Irish art are as peculiar and fine of their kind as any MSS. of any age or country. For two centuries architecture certainly has been no better in Ireland than in England; and if we find Dublin "overdone with huge porticoes, towering domes," and the like, we may recollect that within forty years the architectural genius of England could do nothing more original than the British Museum and the General Post Office, and crib from the temple of Theseus innumerable stucco versions of porticoes to front Unitarian chapels. Art not in the Irish people! Last year we lost Mulready, whose pictures united qualities found but separately in Van Eyck, Beato Angelico, and Ostade, with a power of correct drawing equal to that found in Greek gems—and Mulready was born at Ennis. What living artist, in France or Germany, or modern Italy, has painted a more noble wall decoration than the Battle of Waterloo in the Houses of Parliament? and Daniel Maclise came from Cork and first copied those "plaster busts in the Cork School of Art" which you seem to hold in some contempt. I venture to think that modern art has produced no finer work than this water-glass picture, a process which the artist was the first to introduce into this country. And is not Foley, too, an Irishman, at the head of British sculptors? and may not the "Eve" of MacDowell, the sculptor, an Irishman, challenge most modern works in France and Italy for excellence? Allow me also to tell you that there is "such a thing as a National Gallery in Dublin," the best lighted picture gallery that has been built, where a man can walk in almost when he pleases, even on a Sunday afternoon, as Mr. Sheepshanks wished should be done at Kensington. And it is not true that Schools of Art "do not encourage attempts to draw from life and nature." The copy of their programmes which I enclose, show the contrary. And I would venture to ask you to improve your acquaintance with Schools of Art, which you say is not extensive. I am not an Irishman, but I hope you will allow me this opportunity of raising for a moment a shillaleh in defence of art in Ireland.—Felix Summerly.

Sir,—In a leading article in your journal of yesterday in reference to the recent distribution of prizes to the students in the Government Schools of Design at the Royal Dublin Society, the following paragraph occurs:—"There is no such thing as a National Gallery in Dublin. There is no collection of pictures and sculpture, or other works of art that a man can walk into any hour that he pleases, or even once or twice a week." I am happy to inform you that there is a National Gallery in Dublin; that it includes paintings and sculpture in its collection; that it is open gratuitously to the public on all days of the week, with the exception of Fridays and Saturdays, which are reserved for artists and students, but on which days the public also are admitted at a small charge, and that it is the first institution of the kind in the three kingdoms which has opened its doors for the benefit of the working-classes on Sundays after the hours of Divine service. The gallery was opened on the 1st of February of this year, and the recorded number of visitors up to the present exceeds 167,000, although it was completely closed during the month of October. I send you a catalogue, in the prefatory part of which you will find a brief account of the origin and establishment of the institution; and will perceive that for its collections, however inadequate to public requirements, it is up to the present mainly indebted to private liberality. It is not in my province to comment on the tone and bearing of the article in which so strange an unacquaintance is manifested with the existence of a public institution, the subject of frequent Parliamentary grants; my simple duty is to request that you will, by the publication of this letter, disabuse your readers of the error of supposing there is no National Gallery in Dublin.—George F. Mulvany, Director.

Merrion-square West, Dublin, Dec. 29.

Manufactures.

The Scotch Iron Trade.—According to the authenticated returns of the ironmasters, the production of pig iron in 1864 has attained the amount of 1,160,000 tons, which, at the average price of this year for mixed numbers, reaches the sum of £3,320,000. There have been in blast throughout the year 134 furnaces, giving employment to about 50,000 men. The shipments—foreign and coastwise—and local consumption have sprung up to the grand total of 1,156,000 tons. The stock of pig iron in Scotland, as ascertained by the committee appointed by the iron trade, is now 760,000 tons, thus showing a trifling increase of 4,000 tons. In 1864 the price of pig iron has fluctuated from 67s. to 49s. 3d., giving an average of 57s. 3d. per ton. The demand for malleable iron this year is without a parallel in the history of that material. It is computed that 210,000 tons of pig iron have been used in producing 163,500 tons of bar, sheet, plate, and angle iron, during the last twelve months, whilst our foundries have consumed 270,000 tons.

THE COTTON TRADE.—Messrs. Smith, Edwards, and Co., of Liverpool, report as follows in their Annual Cotton Circular:—The experience of the past year has rather damped the sanguine hopes of those who expected that the vacuum created by this American war would be soon filled up. The opinion was entertained in Lancashire twelve months ago, with the force of a conviction, that 1865 would witness practically the termination of the great cotton crisis, and that, too, irrespective of aid from America. These sanguine auguries have not been fulfilled. The difficulty of replacing a vast cotton field like that of the Southern States is now more fully recognised, and we enter the year 1865 with more sober anticipations than prevailed at the beginning of the last one. Our chief reliance since the American war commenced has been upon the expansion of cotton cultivation in India, but year after year that country has dissappointed us, and now, in the fourth year of the war, we are promised no more than in the first. The export of cotton from Bombay for the years 1861, 1862, 1863, and 1864, has scarcely varied from a million of bales, and the general expectation in Bombay is that it will not exceed that amount in 1865. The reports of the growing crop are not favourable; the rains were deficient, and the plant in many places is not looking well; neither was there any increase of planting this season. The scarcity and dearness of food were excessive through all the west of India, and the ryots dared not extend the cultivation for fear of bringing on a famine. From the north-west Provinces, where the Bengal cotton is grown, a large increase of planting is reported, but the crops are said to be deficient. From the South of India some increase is expected. Looking broadly at the case, it may be hoped that India will give a small increase next year, the more so as a large part of the old crop at Bombay has been held back in consequence of the late panic, and will be shipped freely in the early months of the year. Perhaps an increase of 100,000 or 200,000 bales may be received from India this year, but even that appears very doubtful. From China there has been a steady increase of supply since the trade commenced. The import for 1864 sums up to the large total of 399,000 bales, equal in weight (supposing the bales to average a little under two piculs) to nearly 250,000 Surat, or 200,000 American. Since the present season opened the shipments from China are nearly double those of last year, say 200,000 piculs against 106,000. So it is fair to expect a large increase for the whole year, though hardly in the same ratio as this. From Egypt the accounts are most encouraging; cotton culture in that fertile country makes rapid strides from year to year, and it is generally thought that this crop will exceed the last by 25 per cent.; some say considerably more. We have received from Egypt 257,000 bales this year; it is not unlikely we may get 320,000 bales, or even more, next year. From Brazil a large increase is also expected, perhaps 50,000 bales; but, on the other hand, the prospects of supply from America are not so good. The blockade of the Southern ports is becoming more rigid. At Nassau, the chief depot for blockade runners from the Atlantic coast, there is a suspension of business, and the vessels are leaving for other employment. From Texas there may be a fair supply, but the aggregate 'leakage' from the Cotton States is expected to be less in 1865 than in 1861. From Turkey the accounts of the crops are very unpromising; though a much larger area was planted the crops have failed, and little increase over last year is expected. If these views prove correct, an increase of 200,000 to 400,000 bales may be expected in 1865 over the past year; the import may range from 2,800,000 to 3,000,000 bales, against 2,587,000 bales for 1864, 1,932,000 bales for 1863, and 1,445,000 bales for 1862—the year of smallest supply. The home consumption the past year has taken off 1,606,000 bales, and the export 732,000 bales, being together 248,000 bales less than the import, and this amount has gone to increase our stocks. The problem is, whether the trade and export will take off half-a-million bales more in 1865 at the present scale of prices; otherwise there is likely to be another considerable addition to stock at the close of 1865. That the loss of profit to Lancashire in the last few years has been enormous can be seen at a glance from the small margin that now exists between the aggregate value of the raw material consumed and the manufactured article produced, as compared with former years. Taking the Board of Trade returns of the export of cotton goods and yarn for the last five years, and adding to them an estimate of the amount consumed at home, which we will take as one-third the exports, we obtain a rough approximation to the whole value of the cotton manufactures of Great Britain. If we deduct from this the price paid by our spinners for the raw material consumed, we obtain the amount of profit which the internal industry of the country reaps from the trade. In 1860 a sum of forty millions was distributed among the industrious population of Lancashire, engaged in the cotton trade or the branches dependent upon it. During the last three years this amount has declined to about one-half. Of course there are many modifying circumstances which might be mentioned, such as the profit made upon old stocks held when the war commenced. But again it must be remembered that the exports of 1861 and 1862 were greatly swollen by the shipments of these stocks, and represent more than the real production for these years. Taking all into account, and making allowance for 1860 being a year of remarkable prosperity, it seems fair to assume that the manufacturing industry of Lancashire has suffered to the extent of fifteen millions per annum or more for the last four years, in consequence of the stoppage of the cotton trade with the Southern States, and it is evident that if this exhausting drain upon its capital continues for another year or two, serious consequences must follow in the shape of commercial embarrassment and want of credit.

Colonies.

NEW ZEALAND FISH.—It is well worth the while of the Provincial Council to consider whether it is not necessary to enact some measure for regulating the fisheries of this province (Otago). It is a singular anomaly, that whilst, on the one hand, money is voted for the introduction of new varieties of fish, on the other hand the most wanton destruction of valuable native kind is being tacitly permitted. We might refer to one species of fish alone which is rapidly becoming scarce in this harbour, viz., flounders. The flounder, when in good condition, is a really excellent and valuable fish, but it is rarely now that one can get a full-grown fish; instead of which the fishermen send to market a number of little fry, hardly worth the trouble of cooking. The other day some barrels of fish were being landed from the port steamer, and the contents of two of them consisted entirely of very small flounders, little bigger than sardines. If the reckless capture of fish, in season and out of season, be permitted to continue, there will very soon be nothing but the deep sea varieties left.

Publications Issued.

The Book of Perfumes. By Eugene Rimmel. (*Chapman and Hall.*) This is a curious and interesting work, the origin of which appears to have been the author's labours to instruct and inform the members of the Society of Arts. "Four years ago," observes Mr. Rimmel, "I had to prepare for the Society of Arts a paper on 'The Art of Perfumery, its History and Commercial Development,' and, to qualify myself for the task, I had to devour a huge pile of big books in order to ascertain through what mysterious arts the ancients ministered to the gratification of their olfactory sense, and to the embellishment of the human face divine. Two years later I was called upon to form part of the Jury at the Great Exhibition, and to draw up the official report of the perfumery class. The researches I had to make on the former occasion, and the observations I gathered on the latter, gave me a complete insight into the world of 'sweet smells,' both ancient and modern." Thinking that the notes he had thus collected, combined with the results of his experience as a practical perfumer, and of his rambles in foreign lands, might prove interesting to some, he has given them to the world in this digested form. After devoting a few pages to the physiology of odours in general, he traces the history of perfumes and cosmetics from the earliest times to the present period. He then briefly describes the various modes in use for extracting the aroma from plants and flowers, and concludes with a summary of the various fragrant materials used in the manufacture. A large number of quaint and characteristic illustrations embellish the work, which will possess an interest for many.

MEETINGS FOR THE ENSUING WEEK.

Mon. ...Geographical, 8½. 1. Mr. J. G. Taylor, "Visit to the Sources of the Tigris and Euphrates." 2. Mr. M. A. Abramof, "Lake Nor Tzai-san, and its Neighbourhood."
British Architects, 8.
Medical, 8.
Tues. ...Medical and Chirurgical, 8½.
Civil Engineers, 8. Renewed Discussion upon Mr. Joseph Taylor's Paper "On the River Tees."
Zoological, 9.
Syro-Egyptian, 7½. Mr. D. W. Nash, "On the Monumental Lists of Egyptian Kings."
Ethnological, 8. 1. M. Khanikof, "Contributions to the Natural History of the Iranians." 2. Sir Woodbine Parish, "On the Artificial Eyes of Certain Peruvian Mummies." 3. The Duc de Roussillon, "On the Scythians." 4. Mr. Wallace, "On Civilisation in North Celebes."
Wed. ...Geological, 8. 1. Rev. P. B. Brodie, "On the Lias Outliers at Knowle and Wooton Wawen in South Warwickshire." 2. Mr. T. F. Jameison, "On the History of the last Geological Changes in Scotland." 3. Mr. Julius Haast, "On the Excavation of Valleys by Ice."
Graphic, 8.
Microscopical, 8. Mr. H. J. Slack, "On the Vinegar Plant."
Literary Fund, 3.
Archæological Assoc., 8½.
Thurs...Royal, 8½.
Antiquaries, 8.
R. Society Club, 6.
Fri.......Astronomical, 8.
Sat.......R. Botanic, 3¾.

Patents.

From Commissioners of Patents Journal, December 30th.

Grants of Provisional Protection.

Archers, construction of bows used by—3058—J. Norton.
Atmospheric railway breaks and communications—3083—C. Rendall.
Boots and shoes, manufacture of—3041—W. Clark.
Bottles, jars, &c., construction of—3010—E. Bevan and A. Fleming.
Capstans, apparatus for working—3089—G. Elliott.
Carriages, apparatus for retarding and stopping—3066—T. H. Roberts.
Cigars, pipes, &c., materials for the lighting of—2943—R. A. Brooman.
Cigars, snuffs, &c., preparing tobacco for—3070—L. Morgenthau.
Closets and commodes—3121—J. White.
Coal plates, &c., method of securing—3104—S. Hood.
Comb—3014—R. A. Brooman.
Cooling and freezing, apparatus for—3062—R. A. Brooman.
Cotton, roller gins for ginning or cleaning—3090—E. W. Otway.
Crinolines, dresses, &c., manufacture of—2062—F. Kreuz.
Double suction pump—3155—H. Druneau and P. Laidet, sen.
Elastic substances, machinery for pressing—3181—C. G. Wilson.
Electric insulation—3092—C. Hancock and S. W. Silver.
Fibrous materials, machinery for spinning—3163—J. P. y Llag
Fire-arms, breech-loading—3159—T. A. Grimston.
Fluids, engines for compressing and measuring—3171—J. Ramsbottom and T. Blackburn.
Gases, &c., regulating the flow of—3030—T. Atkins.
Glass maker's pots, construction of—3082—R. H. Johnson.
Hats, manufacture of—3129—F. Cooke.
Hydraulic presses, &c., mode of working—3173—L. R. Bodmer.
Knives, cleaning and polishing—3106—G. Kent.
Laces, braids, &c., apparatus for making—3151—E. T. Hughes.
Liquids and gases, raising and drawing off—3127—J. G. Tongue.
Liquorice cakes, &c.—3098—W. Wharldall.
Looped fabrics, manufacture of—3123—W. Cotton.
Machinery, straps for driving—3125—M. J. Haines.
Mills for grinding corn, &c.—3135—F. Price.
Ornamenting fabrics—3076—R. A. Brooman.
Parchment, preparation of the surface of—3117—S. W. Hooper.
Paving, system of—2974—V. Gache.
Photographic apparatus—3175—J. H. Johnson.
Ploughs—3141—J. A. Hopkins and C. Culpin.
Rails or trams—3137—Z. Eastman.
Railway brakes, apparatus employed for actuating—3006—W. Clark.
Railway carriages, &c., facilitating the starting of—3064—J. H. Johnson.
Railways, traction on—3060—C. Crockford.
Rosin, purification of—3080—F. G. Mulholland.
Ruffles, frills, &c.—3096—H. Taylor.
Sanatory toilet apparatus—2808—W. E. Gedge.
Sawing machinery—3078—R. Mathers.
Sheets and surfaces for designs—3094—C. Hancock and S. W. Silver.
Ships, compositions for coating—3147—H. F. McKillop.
Solar time-pieces—3088—A. V. Newton.
Steam boilers, &c., injecting tallow into—3056—H. Wilson.
Steam engines—3139—H. Davey.
Stone, &c., preserving and ornamenting—3084—R. A. Brooman.
Thermometers—3086—W. H. Cullingford.
Vessels, &c., lifting shot to the fighting deck of—3149—Sir F. Blackwood.
Walls, pavements, &c., decoration of—3113—W. Clark.
Watches, &c., construction of—3100—J. G. Tongue.
Wire rods and wire, apparatus for rolling—2195—G. Bedson.

Invention with Complete Specification Filed.

Douches and injections, apparatus for administering—3215—W. E. Gedge.

From Commissioners of Patents Journal, January 4th.

Patents Sealed.

1585. E. R. Turner & F. Turner.
1664. H. Messer.
1665. R. K. Aitchison.
1666. D. Blake.
1668. W. Lloyd.
1670. B. Whitehouse and C. Priestland.
1671. J. E. Wilson.
1673. J. E. Wilson.
1674. E. Clifton.
1675. J. B. Howell.
1678. E. R. and C. Ainsworth.
1682. J. Spencer.
1683. J. M. Marsden.
1684. H. E. Skinner.
1687. H. Crichley.
1691. J. Wilson.
1693. E. H. Carbutt & W. Cutts.
1695. A. Blake.
1696. E. J. Dixon.
1697. C. A. Bamlett.
1698. G. Russell.
1701. A. Rogers.
1702. J. Middleton & J. Conlong
1707. R. A. Brooman.
1712. J. Webster.
1721. W. E. Gedge.
1727. S. Carey
1729. L. Schad.
1735. A. Bosch.
1756. R. Smith and J. Booth.
1802. T. Bourne.
1804. H. E. F. de Briou.
1830. E. Snell and G. Allibon.
1891. P. E. Fontenay.
1920. J. H. Johnson.
1937. B. O'Connor.
2040. A. V. Newton.
2137. J. Stenhouse.
2319. J. H. Johnson.
2351. W. Whittle.
2463. F. W. Shields.
2747. J. D. Young.
2759. W. E. Newton and E. C. Shepard.
2819. C. Martin.

Patents on which the Stamp Duty of £50 has been Paid.

3240. W. Turner and J. W. Gibson.
3243. T. W. Atlee.
3260. W. Tongue.
13. W. B. Patric.
23. H. Eschwege.
3268. J. Haslam.
3275. R. A. Brooman.

Registered Designs.

Improved Speaking Tube—Dec. 16—4681—John Waldram, 4, Godfrey-row, Shaklewell-green, N.E.
Dry Gas Meter Case—Dec. 17—4682—Henry Alder, The Grange Meter Works, Edinburgh.